percent to 7.6 percent have been recently recorded.

A lateral approach allows radiologists to continuously inject contrast medium under fluoroscopic control without exposing themselves to excessive radiation, and in this way entry into a bile duct is quickly recognized. If the needle enters a dilated bile duct, decompression is undertaken before opacification is attempted. Multiple spot films are taken in various projections, including standing, followed by overhead supine and prone films. In this way the level of obstruction can be identified and the cholangiographic appearances usually permit a specific diagnosis to be made.

PTC is a valuable technique that provides important anatomic information in cases in which conventional diagnostic examinations of the gallbladder and bile ducts offer no help. It permits differentiation of obstructive from hepatocellular jaundice and provides definitive diagnostic information in situations which might otherwise require exploratory laparotomy. JAMES HALLS, MD

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## Clinical Assessment of Left Ventricular Regional Contraction Patterns and Ejection Fraction by High-Resolution Gated Scintigraphy

AN IMPROVED, noninvasive, radionuclidic, gated blood-pool imaging technique has been developed for clinical analysis of regional contraction abnormalities of the left ventricle and determination of ejection fraction. The principal innovations include high-resolution collimation, higher information density, improved method for dynamic aortic-mitral-diaphragmatic border delineation, accurate selection of the end-systolic gating interval through the use of phonocardiograms and accurate end-diastole by on-line gating immediately following the electrocardiographic QRS. The results of scintigraphic studies were compared with selective radiopaque cineangiographic findings in 27 patients with cardiac disease; there were excellent correlations of ejection fractions ($r=0.93$) and abnormal contraction patterns (17/17 patients). In addition, the clinical usefulness in evaluating ventricular performance was shown in 79 patients with acute and chronic coronary artery disease. This radionuclidic technique allowed assessment of reversibility of segmental dyssynergy by the response to nitroglycerin in 20 patients. These findings illustrate the validity of this improved radionuclidic technique in the atraumatic quantification of ventricular function and suggest its usefulness in a variety of clinical conditions.

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## Endoscopic Retrograde Cholangiopancreatography: An Update

IN RECENT YEARS, endoscopic retrograde cholangiopancreatography (ERCP) has been the subject of numerous enthusiastic reports and the success rate in five recent reviews was close to 90 percent. Indications for its use include jaundice of undetermined origin, suspected or known pancreatic disease and abdominal pain of suspected biliary or pancreatic origin.

Sepsis is a dangerous complication and many centers now use prophylactic antibiotics, either given parenterally or added to the contrast medium.

A transient rise in serum amylase occurs in most patients, particularly if an acinar "blush" or urogram occurs during filling. However, the clinical picture of acute pancreatitis is rare and two large surveys in this country report an incidence of 1 percent and 1.3 percent.

ERCP is primarily a radiographic procedure depending heavily on radiographs of the highest quality. Contrast medium usually drains rapidly from the pancreatic ducts and films have to be taken with the endoscope and cannula in place. This places an added responsibility on the radiologist to obtain diagnostic films under less than ideal circumstances. On the other hand, contrast medium remains in the biliary tree after removal